

WHAT IS CLAIMED IS:

1. A coating solution for forming a wettability-varied pattern, wherein the coating solution has pH in a neutral region and contains titanium oxide and polysiloxane having a substituent group which is liquid-repellant and directly bonded to each Si atom constituting polysiloxane.

2. The coating solution for forming a wettability-varied pattern according to claim 1, wherein the coating solution further comprises alkylsilicate.

3. The coating solution for forming a wettability-varied pattern according to claim 2, wherein the substituent group which is liquid-repellant is a fluoroalkyl group.

4. The coating solution for forming a wettability-varied pattern according to claim 2, wherein the polysiloxane is a polysiloxane as a hydrolysis condensate or a co-hydrolysis condensate of a silicon compound, which silicon compound includes a silicon compound represented by  $Y_nSiX_{(4-n)}$  (Y represents an alkyl, fluoroalkyl, vinyl, amino, phenyl or epoxy group, X represents an alkoxyl group or a halogen, and n is an integer in a range of 0 to 3).

5. A method of producing a coating solution for forming a wettability-varied pattern, comprising mixing a neutral sol solution of titanium oxide, whose pH is in a neutral range and

which contains titanium oxide and alkyl silicate, with a solution of hydrolyzed fluoroalkylsilane, thereby preparing a coating solution for forming a wettability-varied pattern, wherein pH of the solution of hydrolyzed fluoroalkylsilane is adjusted in advance such that pH of the prepared coating solution for forming a wettability-varied pattern is in a range of 5 to 9.

6. A method of producing a pattern-formed body, comprising the processes of:

forming a wettability-variable layer whose wettability at a portion irradiated with energy is modified such that a contact angle with liquid at the portion is decreased, by coating a base material with a coating solution for forming a wettability-varied pattern whose pH is in a neutral region and which contains titanium oxide and polysiloxane having a substituent group which is liquid-repellant directly bonded to each Si atom constituting the polysiloxane and then drying or hardening the coating; and

forming, on the wettability-variable layer, a wettability-varied pattern which is constituted of a lyophilic region and a liquid-repellant region, by irradiating the wettability-variable layer with energy in a pattern-like configuration.

7. The method of producing a pattern-formed body according to claim 6, further comprising the process of preparing a coating solution for forming a wettability-varied pattern, in which process a sol solution of titanium oxide containing the titanium

oxide and alkylsilicate is mixed with a solution of hydrolyzed polysiloxane, prior to the wettability-variable layer forming process.

8. The method of producing a pattern-formed body according to claim 6, further comprising the process of filtering the coating solution for forming a wettability-varied pattern, in which process the coating solution for forming a wettability-varied pattern is filtered prior to the wettability-variable layer forming process.

9. The method of producing a pattern-formed body according to claim 6, wherein coating of the coating solution for forming a wettability-varied pattern during the wettability-variable layer forming process is carried out by a method selected from the group consisting of spin coating, slit coating, bead coating, spray coating, dip coating, and combination of slit coating and spin coating.

10. The method of producing a pattern-formed body according to claim 6, wherein the coating solution for forming a wettability-varied pattern is dried or hardened in the wettability-variable layer forming process by drying the coating with a hot plate, an IR heater or an oven.

11. The method of producing a pattern-formed body according to claim 6, wherein irradiation of energy in the

wettability-varied pattern forming process is effected by way of a mask.

12. The method of producing a pattern-formed body according to claim 6, wherein a light-shielding portion is formed on the base material so that energy irradiation in the wettability-varied pattern forming process is carried out from the base material side.

13. The method of producing a pattern-formed body according to claim 6, wherein irradiation of energy in the wettability-varied pattern forming process is effected with laser.

14. A method of producing a functional element, comprising the process of forming a functional portion, in which process a functional portion is formed on the wettability-varied pattern of the pattern-formed body produced by the method of producing a pattern-formed body according to claim 6.

15. The method of producing a functional element according to claim 14, wherein the functional portion forming process is carried out by coating or discharge from a nozzle.

16. A color filter, comprising a pixel portion which is the functional portion of the functional element produced by the method of producing a functional element according to claim 14.

17. A microlens, comprising a lens which is the functional portion of the functional element produced by the method of producing a functional element according to claim 14.

18. A conductive pattern, comprising a metal wiring which is the functional portion of the functional element produced by the method of producing a functional element according to claim 14.

19. A base material for biochip, comprising the functional portion of the functional element produced by the method of producing a functional element according to 14, the functional portion being attachable to a biomaterial.

20. An organic electroluminescent (EL) element, comprising an organic EL layer which is the functional portion of the functional element produced by the method of producing a functional element according to claim 14.

21. A coating device using mixture of two types of liquids, the device being used for the method of producing a pattern-formed body according to claim 6, comprising:

a neutral titanium oxide sol solution accommodating section for accommodating a neutral sol solution of titanium oxide;

a hydrolyzed solution accommodating section for

accommodating a solution of hydrolyzed fluoroalkylsilane;

a stirring section connected to the neutral titanium oxide sol solution accommodating section and the hydrolyzed solution accommodating section such that the neutral sol solution of titanium oxide and the solution of hydrolyzed fluoroalkylsilane can be supplied to the stirring section and stirred therein; and

a coating section for coating the base material with a coating solution for forming a wettability-varied pattern, which is prepared by the stirring of the two solutions at the stirring section.